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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,784	05/14/2001	Masahide Maeda	KIX0146-US	7028
28970	7590	11/25/2003	EXAMINER	
SHAW PITTMAN IP GROUP 1650 TYSONS BOULEVARD SUITE 1300 MCLEAN, VA 22102			ERDEM, FAZLI	
			ART UNIT	PAPER NUMBER
			2826	
DATE MAILED: 11/25/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/853,784

**Applicant(s)**

MAEDA, MASAHIDE

**Examiner**

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7,9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-7, 9 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Aono et al. (5,521,429) in view of Yamaguchi (6,081,029) further in view of Takata et al. (5,977,613) further in view of Hirata (JP 01128896) further in view of Sanders et al. (5,028,741).

Regarding Claim 1, Fig 1A of Aono et al. disclose a semiconductor chip 11, an external connection electrode 12 connected to the chip, and a resin package 14 which covers the chip and has a mounting surface. Furthermore, the electrode 12 has a thick section 16 and a thin section 17, where the thick section is being exposed to outside at the mounting surface of the package.

Regarding Claim 2, Fig 1A of Aono et al. disclose that the electrode 12 has a flat upper surface for mounting the chip, the thick section 16 has a downward projection extending from the upper surface to the mounting surface of the package.

Regarding Claim 3, Fig 1A of Aono et al. disclose that the electrode projection 16 includes an end surface exposed to outside at the mounting surface of the package and the side surfaces are closely covered with the package 14.

Regarding Claim 4, Fig 1A of Aono et al. disclose that the thick section 16 and the thin section 17 are formed of a same material and they are integral with each other.

Regarding Claim 5, Fig 1A of Aono et al. disclose a package structure where the two thick sections 16 are spaced from each other and the thin sections 17 connect the thick sections via wirebond 13 and that the two thick sections are exposed to outside at the mounting surface of the package 14.

Regarding Claim 6, Fig 4A of Aono et al. show a package structure where the package 44 includes a side surface different from the mounting surface and the thin section 42 include a horizontal extension exposed to outside at the side of the package.

Regarding Claim 7, Fig 4A of Aono et al. show a package structure where the thin section 42 is spaced from the mounting surface of the package 44.

Regarding Claim 9, Fig 1A of Aono et al. show a package structure where the external connection electrode includes a first flat surface for mounting the chip, the additional electrode including a second flat surface for connection to the chip via a wire 13, and the first surface and the second surface are flush with each other.

Regarding Claims 1-7, 9 and 11 Aono et al. fail to disclose the required mounting electrode with the required configuration and external connection electrode with the required configuration. However, Yamaguchi discloses a resin encapsulated semiconductor device having reduced thickness and improved reliability where in Figs. 1 and 5 the required mounting electrode is shown. Furthermore, Takata et al. disclose an electronic component, method for making the same, and lead frame and mold assembly for use therein where in Fig. 2 the required external electrode is shown.

Regarding Claims 1-7, 9, and 11 Aono, Yamaguchi and Takata combination fail to disclose the required electrode pair structure and the electrode shape structure with thick and thin

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portions. However, Hirada discloses a semiconductor IC device where the required electrode pair structure is disclosed. Furthermore, Sanders et al. disclose the required electrode structure with thick and thin portions.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required mounting electrode, external electrode, electrode pair, and electrode shape with thick and thin portions in Aono et al. as taught by Yamaguchi, Takata et al., Hirata and Sanders respectively in order to have a semiconductor packaging device with better manufacturability.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

NATHAN J. FLYNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

FE  
November 15, 2003

